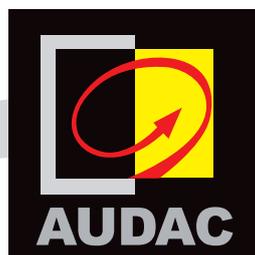


MSP40

User Manual



www.audac.eu

ADDITIONAL INFORMATION

This manual is put together with much care, and is as complete as could be on the publication date. However, updates on the specifications, functionality or software may have occurred since publication. To obtain the latest instruction manual or obtain additional product information, please visit the product page on www.audac.eu. For information about software version updates, please visit www.audac.eu/software.

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Introduction

Professional media player & recorder

The MSP40 is a professional media player/recorder supporting a wide variation of compressed and lossless audio formats. Playback of MP3, OGG, AAC, FLAC, WMA and WAV is possible in numerous bit rates, while recordings are possible in MP3, OGG and WAV file types.

The front panel of the system accommodates a 2.8" TFT display in combination with a push rotary function dial and 4 tactile pushbuttons. The controls and indicators on the front panel of the unit are guaranteeing an intuitive and user friendly operation, allowing hassle free operation and configuration to even unexperienced users.

All media information including track, artist, playback mode, ... are indicated on the graphical user interface, while playback modes are selectable between single or continuous play and various repeat and random play modes are available.

Both the balanced stereo line output (playback) and the balanced stereo line input (recording) are implemented using two 3-pin terminal block connections. The USB media carrier shall be inserted to the USB socket on the front panel of the unit.

The RS-232 communication port allows system integration with any home or industrial automation system, while an optional 2.4 GHz remote control allows handheld control while hidden out of sight.

Precautions

READ FOLLOWING INSTRUCTIONS FOR YOUR OWN SAFETY

ALWAYS KEEP THESE INSTRUCTIONS. NEVER THROW THEM AWAY

ALWAYS HANDLE THIS UNIT WITH CARE

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

NEVER EXPOSE THIS EQUIPMENT TO RAIN, MOISTURE, ANY DRIPPING OR SPLASHING LIQUID. AND NEVER PLACE AN OBJECT FILLED WITH LIQUID ON TOP OF THIS DEVICE

NO NAKED FLAME SOURCES, SUCH AS LIGHTED CANDLES, SHOULD BE PLACED ON THE APPARATUS

DO NOT PLACE THIS UNIT IN AN ENCLOSED ENVIRONMENT SUCH AS A BOOKSHELF OR CLOSET. ENSURE THERE IS ADEQUATE VENTILATION TO COOL THE UNIT. DO NOT BLOCK THE VENTILATION OPENINGS.

DO NOT STICK ANY OBJECTS THROUGH THE VENTILATION OPENINGS.

DO NOT INSTALL THIS UNIT NEAR ANY HEAT SOURCES SUCH AS RADIATORS OR OTHER APPARATUS THAT PRODUCE HEAT

DO NOT PLACE THIS UNIT IN ENVIRONMENTS WHICH CONTAIN HIGH LEVELS OF DUST, HEAT, MOISTURE OR VIBRATION

THIS UNIT IS DEVELOPED FOR INDOOR USE ONLY. DO NOT USE IT OUTDOORS

PLACE THE UNIT ON A STABLE BASE OR MOUNT IT IN A STABLE RACK

ONLY USE ATTACHMENTS & ACCESSORIES SPECIFIED BY THE MANUFACTURER

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME

ONLY CONNECT THIS UNIT TO A MAINS SOCKET OUTLET WITH PROTECTIVE EARTHING CONNECTION

THE MAINS PLUG OR APPLIANCE COUPLER IS USED AS THE DISCONNECT DEVICE, SO THE DISCONNECT DEVICE SHALL BE READILY OPERABLE



CAUTION – SERVICING

This product contains no user serviceable parts. Refer all servicing to qualified service personnel. Do not perform any servicing (unless you are qualified to)



EC DECLARATION OF CONFORMITY

This product conforms to all the essential requirements and further relevant specifications described in following directives: 2014/30/EU (EMC) and 2014/35/EU (LVD)

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

The WEEE marking indicates that this product should not be disposed with regular household waste at the end of its life cycle. This regulation is created to prevent any possible harm to the environment or human health.



This product is developed and manufactured with high quality materials and components which can be recycled and/or reused. Please dispose this product at your local collection point or recycling centre for electrical and electronic waste. This will make sure that it will be recycled on an environmentally friendly manner, and will help to protect the environment in which we all live.

CAUTION

The symbols shown are internationally recognized symbols that warn about potential hazards of electrical products. The lightning flash with arrowpoint in an equilateral triangle means that the unit contains dangerous voltages. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the users manual.



These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

Chapter 1

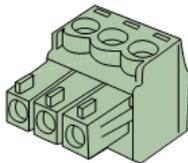
Pin connections and connectors

CONNECTION STANDARDS

The in- and output connections for AUDAC audio equipment are performed corresponding to international wiring standards for professional audio equipment.

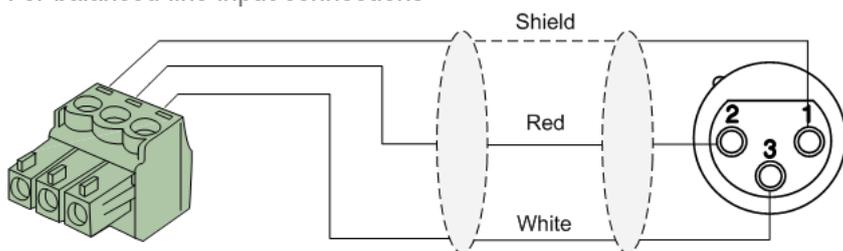
3-Pin Terminal Block:

For balanced signal input & link output connections.

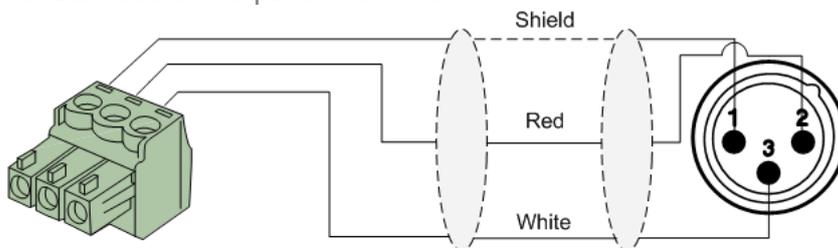


Left: Signal – (XLR Pin 3)
Center: Signal + (XLR Pin 2)
Right: Ground (XLR Pin 1)

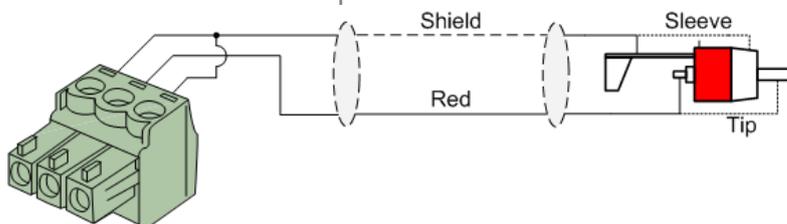
For balanced line input connections



For balanced line output connections:



For unbalanced line in & output connections:



RS232 (serial connection interface):

For connection with home automation systems, or other remote control equipment

Connection	Standard RS232
PIN 2	MSP40 TX
PIN 3	MSP40 RX
PIN 5	GND
Settings	19200 Baud 8 Bit 1 Stop bit No parity No Handshaking

RS232

The MSP40 has an RS232 and TCP/IP ports accepting the same commands. The complete command set to control the XMP44 is available in the XMP44 commands user manual which is freely downloadable on www.audac.eu

Chapter 2

Front & rear panel

Front Panel overview



Front panel description

USB Port:

A USB port is located on the left side of the front panel. The USB data carrier (USB memory drive or HDD) shall be connected to this port for playback or storage (recording) of media files.

Graphical LCD display with tactile push buttons and rotary selection dial:

A clear system overview and intuitive user experience is offered using the 2.8" graphical LCD display accompanied with four tactile selection buttons (left side) and a rotary selection dial (right side). The true colour display offers a clear overview of the systems current operation mode with intuitive and user friendly browsing through the menu structure.

The functionality of the four tactile push buttons on the left side depends on the current mode and position in the menu structure. Icons on the left side of the display are indicating the current functionality linked with the buttons.

Parameter adjustment and browsing is made easy using the rotary function dial. This multifunctional dial allows easy one-hand operation throughout the entire menu structure. Browsing through the menu is done by rotating it while actions are made by pressing it.

Power switch:

Allows to power the system ON and OFF. The blue indicator LED illuminates when switched on.

Rear Panel overview



Rear panel description

AC Power inlet with fuse:

The mains power supply (100–240V AC – 50/60 Hz) has to be applied to this AC power inlet. The connection is made by an IEC C14 power connector and is fitted with a fuse. When replacing the fuse, make sure that the value of the replacement fuse matches the value of the original fuse. (T0.5AL/250V)

RS232 Connection:

The RS232 connection can be used to control the system through any external hardware such as home and industrial automation systems. The pinout and communication settings are described in an earlier chapter of this user manual. The complete RS232 command instruction set and configuration information can be downloaded from the AUDAC website.

USB (Update) Connection:

The USB (Update) connection can be used for system firmware updates and/or for connection of the RF remote control (RMT40) receiver.

Balanced stereo line output:

The balanced stereo line output is implemented using two 3–pin terminal block connectors. The audio output available on this connector allows it to be fed to any amplifier or pre–amplifier.

Balanced stereo record input:

The balanced stereo line input (recording input) is implemented using two 3–pin terminal block connectors. The line level audio signal coming from the audio source or pre–amplifier shall be connected to this connector, allowing it being recorded.

Chapter 3

Using the MSP40

The MSP40 control and configuration is done through the front panel of the device which includes a 2.8" graphical LCD display, which is accompanied with four tactile push buttons (left side) and a rotary selection dial (right side). This combination allows you to navigate through the systems user interface and access all the available control and configuration possibilities of the system.



The functionality of the four tactile push buttons on the left side depends on the current mode and position in the menu structure. Icons on the left side of the display are indicating the current functionality linked with the buttons.

The rotary selection dial can be used for parameter adjustments and browsing to station lists, playlists or any other. This multifunctional dial allows easy one-hand operation throughout the entire menu structure. Browsing is done by rotating it while actions are made by pressing it.

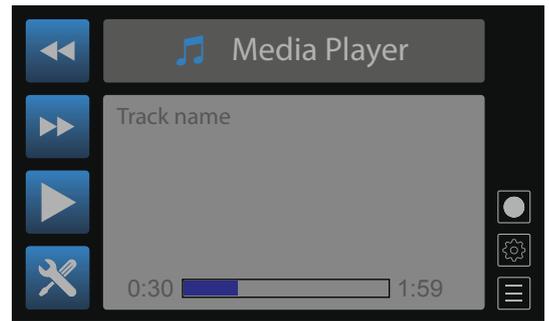
The functionality for each icon is indicated in following table:

ICON	DESCRIPTION
	Browse to the previous track
	Browse to the next track
	Play audio track (playback mode) Play latest recording (recorder mode)
	Browse media carrier file directory
	Start / continue audio recording (recorder mode)
	Pause audio recording (recorder mode)
	Stop audio recording (recorder mode)
	Delete current audio recording (recorder mode)
	Mark / save current selection as favourite
	Go to general settings
	Go to media player / recorder settings

Main screen

The main screen of the MSP40 gives an overview of the current operation mode and can be switched between media player mode and media recorder mode. In media player mode, the track position, track name and other additional info will be displayed on this screen. In media recorder mode, the filesize of the recorded track and length of the recorded track are indicated.

The left section of the module screen includes 4 quick buttons which can be controlled through the tactile buttons on the left screen side.



Switching between record or playback mode is done through rotating the selection dial and selecting the ► (switch to media player) or ● (switch to media recorder) icons.

General settings:

The ⚙️ (General settings) button gets you to the general settings menu where all general settings for the device can be configured.

Media player mode

Track selection:

The playing track can be selected by pressing the ◀◀ (previous track) and ▶▶ (next track) buttons. When selected, the first next supported track will be selected and start playing. When using this function, track browsing throughout the entire inserted media carrier can be done, including all sub-folders.

Track browsing:

Browsing through the folders of the inserted media carrier can be done by using the rotary dial and selecting the ≡ (browse) icon. The media player browsing menu will be indicated and browsing through the media files is done by turning the function dial. The currently highlighted file can be selected by pressing the selection dial.



Play / pause:

Toggling between play and pause is done by pressing the play/pause button with ► (play) or || (pause) symbols. Depending of the current mode, the displayed symbol on the icon will toggle.

Settings:

The ⚙️ (settings) button can be selected through rotating the selection dial until the icon is highlighted and pressing it. This button gets you to the media player settings menu of the MSP40 where all configurations can be made. (it also includes various recording settings, which can only be accessed when switched to recorder mode)

Media player settings

The player settings menu for MSP40 is loaded when pressing the ⚙️ (settings) button in player mode.

Output gain:

The gain can be adjusted within a range of +8 dB and -92 dB, allowing optimization of the output level according to the input sensitivity of the connected amplifier or pre-amplifier. For adjusting the output gain, rotate the function dial until 'Gain' is highlighted and press it for proceeding to the gain settings. The level can be adjusted by rotating clockwise (volume up) or counter-clockwise (volume down). Press the rotary dial for confirming the currently set output level.



Shuffle:

Random play mode (shuffle) can be switched On and Off. When switched On, all tracks will be played in a randomized sequence. The MSP40 will select between all the tracks available on the inserted media carrier including all sub-folders.

Toggle the shuffle mode by highlighting 'Shuffle' (navigate through rotary dial) and pressing the rotary dial.

Repeat mode:

The repeat mode can be switched between 'Off', 'Repeat all', 'Repeat one' and 'Repeat folder'. When 'Repeat all' is enabled, all tracks on the inserted media carrier will be played in sequential order and when the last track is played, it will restart automatically with the first track. When selected 'Repeat one', the currently selected track will continuously play in an endless loop. When selected 'Repeat folder', all tracks in the same folder of the currently playing track will be played in a sequential order and when the latest track inside this folder is played, it will automatically restart with the first track in this folder.

Toggle between the various repeat modes by highlighting 'Repeat mode' (navigate through rotary dial) and pressing the rotary dial.

Play mode:

The play mode can be selected between 'Single play' and 'Continuous play'. In 'Continuous play' mode, the next track will automatically start playing when the current track is finished. In 'Single play' mode, the player stops playing, waiting for a 'Play' command (press the Play button) before playing the next track.

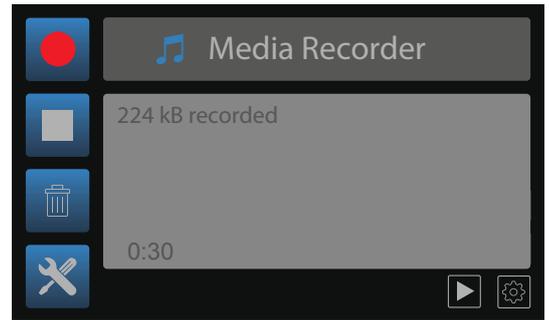
In applications where the device is used for music playback, usually the 'Continuous play' will be used, while in other situations such as educational purposes, houses of worship or gym's the 'Single play' mode can provide great user convenience.

Media recorder mode

Start recording:

Recording of audio tracks can be started by pressing the  button. The display will indicate the filesize (in kB) and length (in minutes and seconds) of the current recording.

While recording, the upper button will change to  (pause) allowing to pause the current recording. When resuming recording after paused (press again the ) the recording will continue within the same track.



Stop recording:

The recording can be stopped through pressing the  (stop) button. When pressed, the recording will be stopped and the file will be closed, making it unable to resume the recording within the same track.

When restarting the recording after stop, the audio recording will be stored as an individual file. When the filename is not changed in between various recordings (to be done in recording settings menu), the subsequent recordings will be indicated with a number (e.g. recording(2).mp3) in the stored filename.

Delete recording:

While recording, the current recording can be removed through pressing the  (delete) button. Note that deleted files are permanently removed and cannot be recalled afterwards.

Pre-listening recording:

Once stopped the recording, the  (play) button becomes available, allowing to pre-listen the last made recording.

Media recorder settings

The recorder settings menu for MSP40 is loaded when pressing the  (settings) button in recorder mode.

Filename:

The filename of the recorded tracks can be configured in this screen. When selected, a screen with keyboard overview allows to enter the filename through using the rotary selection dial. When entered, select 'OK' to confirm the currently entered track name. 'Delete' removes the latest entered character, while 'Cancel' brings you back to the settings overview screen without any applied changes.

When making multiple recordings in a row, each audio recording will be stored as an individual file (when the recording was stopped). When the filename is not changed in between various recordings, the subsequent recordings will be indicated with a number (e.g. recording(2).mp3) in the stored filename.

Filetype:

The filetype of the recordings can be selected between MP3, OGG Vorbis and Wav. Toggle between the various recording filetypes by highlighting 'Filetype' (navigate through rotary dial) and pressing the rotary dial.

Mono/stereo:

The recording for MP3 filetypes can be switched in various types of mono / stereo modes, including '**Joint stereo**', '**Dual stereo**', '**Mono (left input)**' and '**Mono mix**'. Toggle between various recording modes by highlighting 'Mono / stereo' and (navigate through rotary dial) and pressing the rotary dial.

Using '**Joint stereo**' mode, the similarities and differences between both left and right channels are individually encoded. This improves the compression efficiency at a slight loss of separation.

Using '**Dual stereo**', both left and right channels are individually encoded as completely separate signals. Each channel uses half of the available bitrate, for example by a 128 kbit recording, each channel would take 64 kbit.

Using '**Mono (left input)**', only the signal available on the left recording input will be recorded as a single (mono) audio signal.

Using '**Mono mix**', both left and right signal inputs will be summed to a mono signal, which will be recorded as a single (mono) audio signal.

MP3:

The MP3 recording settings can be selected between '**Variable bitrate**' and '**Constant bitrate**'. In constant bit rate mode, a fixed bitrate is used for the entire track resulting in consistent and predictable file sizes. In variable bitrate mode, the bitrate is adapted according to the complexity of the audio. For simple passages, the system automatically turns the bitrate down, saving valuable data bits while retaining audio quality. During more complex passages, the system automatically turns the bitrate up, using more databits to retain the same level of audio quality. In general, the variable bitrate gives better results in terms of audio quality, while the constant bitrate is better for compatibility (mainly with older systems).

The bitrate for the audio recording can be selected between 64 kbps, 96 kbps, 128 kbps, 192 kbps, 256 kbps and 320 kbps. A bitrate of 192 kbps is generally accepted as good-quality, while a 256 kbps recording corresponds with CD quality. For constant bitrate recordings, the selected bitrate is constant throughout the entire track, while for variable bitrate recordings the nominal bitrate is defined, which could be influenced by the complexity and detail of the audio.

OGG Vorbis:

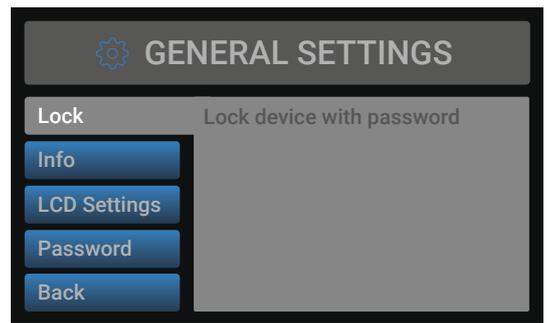
For OGG Vorbis recordings, the quality settings can be selected by a number from '0' to '9', whereby '0' corresponds with a nominal bitrate of 64 kbps and '9' corresponds with a nominal bitrate of 320 kbps. Starting from '6' (192 kbps) the recording is generally accepted as a good-quality recording, while '8' (256 kbps) corresponds with CD quality. An OGG recording provides the same quality for a lower filesize, compared to MP3.

WAV:

For WAV recordings, the sampling rate can be selected between 8 kHz, 16 kHz, 24 kHz, 32 kHz and 48 kHz with a fixed bit depth of 16 bits per sample. Depending on the application, the suitable sample rate can be selected. For high-quality music recordings, it is recommended to always select the 48 kHz sample rate, while for voice announcements or other spoken message recordings, lower sample rates can be sufficient.

General settings

The general settings menu for MSP40 is loaded when pressing the  (general settings) button. The general settings menu allows to configure all the global settings for the MSP40 unit, keeping aside the player and recorder settings.



Lock:

When selecting 'Lock', the system will be locked and will require a password to be entered before any further action can be taken (if the password is enabled).

Info:

Info will give an overview of the software versions the MSP40 is running.

LCD Settings:

Adjustments for the LCD settings can be made here. The brightness can be adjusted within a range of 10% to 100% (standard is 80%). Adjusting of the LCD brightness can be convenient when the device is placed in an environment with very low or very high ambient light. Hereby the clarity of the LCD can be adjusted being clear but unobtrusive.

The backlight off time can be adjusted within an interval of 10 up to 120 minutes or never (always on), making the backlight of the LCD automatically turn off after the set time.

Password:

Password protection can be enabled, avoiding unauthorized users to make any adjustment to the system. The password is a four-digit code. In default, the password is set to '0000' which gives full access to the system without requiring any password to be entered. If the configured password is different from '0000', the user will be requested to enter the password before any access to the systems functions is provided.

The currently set password will be shown and the adjusting digit can be selected (turns red) and confirmed by turning and pressing the rotary selection dial. Consecutive digits will increase when the maximum value has been reached.

After the desired password has been selected it can be confirmed by pressing (turns red) and turning the function dial clockwise to the entire right side where the 'OK' word will appear. After pressing again the password is confirmed.

Back:

Returning to the main screen is done by selecting 'Back'.

Chapter 4

Additional information

Technical specifications

Input	Balanced stereo line input (2 x 3-pin Euro Terminal Block ~ 3.81 mm)
Output	Balanced stereo line output (2 x 3-pin Euro Terminal Block ~ 3.81 mm)
Output level	+8 dB ~ -91 dB (Software configurable)
Supported filetypes playback	MP3 V1.0, V2.0, V2.5 Ogg vorbis MPEG4/2 AAC-LC+PNS HE-AAC v2 (Level 3), SBR+PS WMA 4.0/4.1/7/8/9 WAV (PCM + IMA ADPCM);
Compatible media playback	USB Flash drive / HDD (external)
Compatible filesystems	FAT16/FAT32
Supported media carrier capacity	Max 8 TB (FAT32)
Control	Front panel RS232 (DB9 connector) RMT40 Remote control (optional)
Display	2.8" Graphical LCD
Signal/noise	94 dB
THD+N	< 0.07%
Frequency response	20 Hz – 20 kHz
Crosstalk	80 dB
Power supply	Type Switching mode Range 100–240V AC – 50/60 Hz
Power consumption	1.6 Watt
Dimensions (W x H x D)	482 x 44 x 330 mm
Weight	3.15 Kg
Unit height	1 HE
Optional accessories	RMT40 RF remote control – 2.4 GHz

